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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,689	11/04/2003	Jyrki Mattila	59643.00310	4933
32294 7590 10/27/2010 SQUIRE, SANDERS & DEMPSEY L.L.P. 8000 TOWERS CRESCENT DRIVE 14TH FLOOR VIENNA, VA 22182-6212			EXAMINER LAM, DUNG LE	
			ART UNIT 2617	PAPER NUMBER
			NOTIFICATION DATE 10/27/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/699,689	Applicant(s) MATTILA, JYRKI	
	Examiner DUNG LAM	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/13/10.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-11,14-19,21-25,27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-11,14-19,21-25,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims **1-2, 5-11, 14-21, 23-25 and 27-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling** (US Patent Number 6128328) in view of **Otsuka** (US 6741859) further in view of **Cherpantier** (US 5960352)

2. Regarding **claim 1**, Schilling teaches in Figure 5 an apparatus including at least one cell (A, B, C, Fig. 5), said cell comprising:

a defining unit configured to define a capacity layer for a cell of a communications system, the cell comprising a coverage layer (A, B, C, Fig. 5) defining having a fixed coverage are provided by at least one carrier,

the capacity layer comprising at least one carrier (by definition, a cell has a fixed coverage area provided by at least one carrier. The concept of having a fixed coverage that is defined by the range that the broadcast channel can reach is also admitted in the current application's background, para. 6, 7, 28 of applicant's specification; and Schilling's teaching C7 L29-30) coverage area (Col. 3, lines 40-57),

each carrier in the capacity layer having a dynamic variable coverage area (Fig. 5A further comprises of multiple bands of frequencies, e.g. F1, F2, F3, F4, F5, F6; alternatively, Figs. 6 and 7; C9 L36-67), to dynamically vary a total number of carriers in

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the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C12 L58-65 sector size is adjustable to accommodate from a capacity of zero to 80 users for each sector) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it is known in the art that one way to accommodate more users is to increase the number of channels. In an analogous art, **Otsuka** teaches the concept of a defining unit configured to adjust the number of channels/carriers to accommodate the current utilization of the cell (As the number of mobiles using radio frequency RF1 are approaching an upper limit, transmission using RF2 is commenced thereby increasing the number of carriers being used and increasing the capacity, C16 L15-67; C17 L8-27). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have an adjusting means to adjust the number of carriers in order to accommodate more users/traffic.

However, they do not explicitly teach power adjustment. In an analogous art, Cherpantier teaches wherein a power level of the at least one carrier in the capacity layer is variable such that the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station (C7 L5-16). Therefore, it would have been obvious for one of ordinary skill in the art to combine the concept of adjusting the power based on the MS's distance to reduce interference.

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3. Regarding **claim 2**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 1. Schilling's teachings discloses a power level of a carrier in a downlink of the coverage layer defines the coverage of said at least one cell (a base station coupled with base-power means to radiates signal over a coverage area from the base station to a remote, Col. 3, lines 40-57).

4. Regarding **claim 5**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 1. Schilling further teaches a power level of at least one carrier of said number of carriers in the capacity layer is variable (Col. 10, line 19-21 and Col. 11, lines 51-65).

5. Regarding **claim 6**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 1. Schilling teaches that a total transmission power for a downlink is divided between the coverage layer and the capacity layer of said at least one cell in dependence on the coverage and capacity requirement of the system (Col. 11, lines 30-65).

6. Regarding **claim 7**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 6. Schilling further teaches power available for at least one of the coverage layer and the capacity layer is divided between carriers in the coverage layer and the capacity layer (Col. 11, lines 30-65).

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7. Regarding **claim 8**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 1. Schilling teaches the cellular communication system comprises a multi-carrier system (6 directional antenna 109, Col. 7, lines 22-29).

8. Regarding **claim 9**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 1. Schilling further teaches the cellular communication system comprises a single carrier system (6 omni-directional antenna 109, Col. 7, lines 22-29).

9. Regarding **claims 10-11, 14-18**, they are method claims corresponding to the apparatus claims 1-2, 5-9. Therefore, they are rejected for the same reasons as claims 1-2, 5-9.

Regarding **claim 19**, Schilling teaches an apparatus comprising:

at least one transmitter unit configured to transmit a first carrier at a predetermined power level thereby defining a coverage area of a cell of a communication system (Col. 3, lines 40-57 and background of the present invention),
and further configured to transmit a variable number of further carriers thereby defining, at least in part, a dynamically variable total number of carriers in the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55, Col. 8 lines 31-35 and Col. 10, lines 25-26, Col. 12 Line 55 - Col 13 Line 26 Col. 13 In 65- Col. 14 In 8; alternatively, Figs. 6 and 7, C9 L36-67), to dynamically vary the capacity of the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C1258-65

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sector size is adjustable to accommodate from zero to 80 users) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Otsuka teaches the concept of adjusting the number of channels to accommodate the current utilization of the cell (variable number of users associated with each sector, C11 L23-38). Therefore, one skill in the art at the time of the invention would see that Schilling's teaching of the adjusting of the sectors would have some adjusting means to adjust the number of channels/carriers in order to accommodate the unpredictable utilization of the sector.

However, they do not explicitly teach power adjustment. In an analogous art, Cherpantier teaches wherein a power level of the at least one carrier in the capacity layer is variable such that the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station (C7 L5-16). Therefore, it would have been obvious for one of ordinary skill in the art to combine the concept of adjusting the power based on the MS's distance to reduce interference.

10. Regarding **claim 20**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 19. Schilling further teaches power levels of a variable number of carriers depends upon a proximity of a mobile station associated with a carrier to a base station (Col. 10, lines 25-27).

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11. Regarding **claim 21**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 20. Schilling further teaches a total power of the variable number of carriers comprises a predetermined power, and wherein a portion of said predetermined power among the variable number of carriers is determined by a total number of carriers (Col. 11, lines 30-65).

12. Regarding **claim 23**, Schilling, Otsuka and Cherpantier teach an apparatus according to claim 5, wherein the said power level is variable in dependence on a position of a mobile station (Col. 10, lines 25-27).

13. Regarding **claim 24**, Schilling, Otsuka and Cherpantier teach a method according to claim 14, further comprising varying the power level of a carrier in the capacity layer in dependence on a position of a mobile station (Col. 10, lines 25-27).

14. Regarding claims **25, 27-28**, they are apparatus claims that have similar limitations as claim 1. They are rejected for the same reasons as claim 1.

15. Claims **22** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Schilling, Otsuka and Cherpantier** in view of **Lawrence** (US Publication Number 2004/0203837).

16. Regarding **claim 22**, Schilling, Otsuka and Cherpantier teach all the limitations according to claim 21. Schilling further teaches a second transmitting means for transmitting a variable number of users. However, he fails to teach that the power allocated to at least one carrier is configured to reduce in response to an increase in the variable number of carriers. In an analogous art, Lawrence teaches that the power level is adjusted according to the subscriber density and demand in a particular region (para.

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2). Therefore, it would have been obvious for one of ordinary skill in the art the time of the invention to modify Schilling's teaching to include an adjustable power level in accordance to the capacity of the cell to maximize the signal quality.

17. Claims **1, 10, 19, 25, 27-28** are further rejected under 35 U.S.C. 103(a) as being unpatentable over **Schilling** (US Patent Number 6128328) in view of **Mujtaba** (U6 950678) further in view of Cherpantier

18. Regarding **claim 1**, Schilling teaches in Figure 5 an apparatus including at least one cell (A, B, C, Fig. 5), said cell comprising:

a defining unit configured to define a capacity layer for a cell of a communications system, the cell comprising a coverage layer (A, B, C, Fig. 5) defining having a fixed coverage are provided by at least one carrier,

the capacity layer comprising at least one carrier (by definition, a cell has a fixed coverage area provided by at least one carrier. The concept of having a fixed coverage that is defined by the range that the broadcast channel can reach is also admitted in the current application's background, para. 6, 7, 28 of applicant's specification; and Schilling's teaching C7 L29-30) coverage area (Col. 3, lines 40-57),

each carrier in the capacity layer having a dynamic variable coverage area (Fig. 5A further comprises of multiple bands of frequencies, e.g. F1, F2, F3, F4, F5, F6; alternatively, Figs. 6 and 7; C9 L36-67), to dynamically vary a total number of carriers in the cell (Col. 3, lines 36-39, Col. 8, lines 21-28 and Col 11 lines 25-55; alternatively, C12 L54-64; C12 L58-65 sector size is adjustable to accommodate from a capacity of

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zero to 80 users for each sector) which means more carriers are used to accommodate more users.

Although, there's no explicit teaching that the number of carriers is increase in order to increase the capacity, it known in the art that one way to one way to accommodate more users is to increase the number of channels. In an analogous art, Mujtaba teaches the concept of adjusting the number of channels to accommodate the current utilization of the cell and change the capacity of the cell (C1). Therefore, one skill in the art at the time of the invention would combine Schilling's teaching of the adjusting of the sectors with Mujtaba's adjusting means to adjust the number of channels/carriers in order to quickly accommodate the unpredictable utilization of the cell.

However, they do not explicitly teach power adjustment. In an analogous art, Cherpantier teaches wherein a power level of the at least one carrier in the capacity layer is variable such that the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station (C7 L5-16). Therefore, it would have been obvious for one of ordinary skill in the art to combine the concept of adjusting the power based on the MS's distance to reduce interference.

Regarding claims 10, 19, 25, 27-28, they are apparatus and computer readable medium claims which correspond to claim 1 and thus rejected for the same reasons as claim 1.

Response to Arguments

Applicant's arguments filed 8/13/10 have been fully considered but they are not persuasive.

Applicant argues that,

“Schilling, Otsuka and Cherpentier fails to disclose or suggest, at least, "varying the number of carriers in the capacity layer to dynamically vary a total number of carriers in the cell," or "the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station".

Otsuka fails to cure the deficiencies in Schilling outlined above. Otsuka merely discloses **switching on further frequencies** when the number of users exceeds a certain value and switching off those further frequencies when the number of users drops below a certain value.” (emphasis added)

The examiner respectfully disagrees. As applicant pointed out in the Remarks that Otsuka teaches the concept of **switching on further frequencies** when the number of user exceeds a certain value (C16 L15-67; C17 L8-27). This switching on of further frequencies is equivalent to increasing the number of frequencies/carriers being used in an effort to accommodate more users and thereby increases the capacity.

Applicant argues that,

“Cherpentier fails to cure the deficiencies in Schilling and Otsuka. Cherpentier teaches, in column 7, how to calculate the range of radio signals based on a path loss calculation. However, Cherpentier, like Otsuka and Schilling, fails to disclose or suggest varying the number of carriers in the capacity layer to dynamically vary a total number of carriers in the cell, or varying the power level based upon a distance of an associated mobile station from the base station.”

The examiner respectfully disagrees. Applicant's arguments amount to a general allegation that the cited references do not teach certain features without presenting substantive reasoning of how the language of the claims patentably distinguishes them from the references. Cherpantier teaches a power level of the at least one carrier in the capacity layer is variable such that the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station (C7 L5-16). "

Applicant argues that,

Applicants respectfully submit that the combination of Schilling, Cherpantier, and Mujtaba fails to disclose or suggest, at least, "varying the number of carriers in the capacity layer to dynamically vary a total number of carriers in the cell," or "the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station,"

The examiner respectfully disagrees. Applicant's arguments amount to a general allegation that the cited references do not teach certain features without presenting substantive reasoning of how the language of the claims patentably distinguishes them from the references. As stated above, Mujtaba teaches the concept of adjusting the number of channels to accommodate the current utilization of the cell and change the capacity of the cell (C1) and Cherpantier teaches a power level of the at least one carrier in the capacity layer is variable such that the power level of the at least one carrier can be varied in dependence upon a distance of an associated mobile station from the base station (C7 L5-16).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUNG LAM whose telephone number is (571) 272-6497. The examiner can normally be reached on M - F 9 - 5:30 pm, Every Other Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kent Chang can be reached on (571) 272-7667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kent Chang/
Supervisory Patent Examiner, Art Unit 2617